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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/053,297 | 01/17/2002 | Werner Bonrath | 20827 US (C38435/123864) | 5010 |

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03/11/2003

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EXAMINER

SACKEY, EBENEZER O

ART UNIT PAPER NUMBER

1626

DATE MAILED: 03/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/053,297

Applicant(s)

BONRATH ET AL.

Examiner

EBENEZER SACKEY

Art Unit

1626



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Apr 24, 2002
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- *See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 5
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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DETAILED ACTION

Claims 1-22 are pending. Receipt of the information disclosure statement filed on 04/24/02 is acknowledged.

Specification

The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim Rejections - 35 U.S.C. § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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3. Claims 1-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Furbringer (U.S. Patent No. 5,886,196) in view of GB 811,895 and CA 124:248655.

Applicants claim a process for making α -tocopherol comprising a reaction mixture of trimethylhydroquinone and phytol or isophytol with hydrogen tris(oxalato)phosphate catalyst and an organic solvent.

Determination of the scope and content of the prior art (M.E.P.. §2141.01)

Furbringer teaches the use of hydrogen bis(oxalato)borate catalyst in preparing α -tocopherol which comprises a reaction mixture between trimethylhydroquinone and isophytol and an organic solvent. See example 6, column 3, lines 45-56.

Ascertainment of the difference between the prior art and the claims (M.E.P.. §2141.02)

The prior art process of preparing α -tocopherol differs from the instant process in that bis(oxalato)borate catalyst is used for preparing α -tocopherol, wherein a catalyst comprising tris(oxalato)phosphate is required for the instant process. The reference catalyst, bis(oxalato)borate is a known nontoxic, non-corrosive and environmentally safe catalyst for

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producing α -tocopherol in high yields. See column 1, lines 57-60 and example 6, lines 45-57. The required catalyst of tris(oxalato)phosphate is also nontoxic, non-corrosive and environmentally safe. Thus, the use of bis(oxalato)borate catalyst is prima facie obvious in view of its properties as disclosed. Additionally, see GB 811,895 which teaches the reaction of trimethylhydroquinone and isophytol/phytol with phosphate (III) as a catalyst and CA 124:248655 which discloses the equivalence of other known catalyst such as tris (oxalato)chromate. These catalysts are known chelating agents which are non-toxic and non-corrosive catalysts which can be interchangeable with each other because of their similar properties and which can be used to prepare tocopherols.

Claims 3, 4 and 6 require the use of aliphatic ethers. '196' discloses that suitable solvents for preparing α -tocopherol includes aliphatic ethers. See column 2, lines 18-26 and the use of cyclic ketones as is required of instant claims 8 and 9. Additionally, claim 7 is drawn to the process wherein the solution used for preparing α -tocopherol is the same solution used for

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preparing the catalyst. This limitation is not disclosed by '196'. However, the use of the solution is an obvious variance of process parameters.

Claims 15, 16 and 17 require temperatures ranging between 50-150°C, 90-125°C and 105-125°C respectively. Column 2, line 1-16 of the reference discloses process temperatures ranging between 0-140°C.

Claims 18 and 19 require for an example molar ratio of trimethylhydroquinone to isophytol/phytol present in the reaction medium to be 1.5:1 to 2.2:1. '196' is also silent on the ratios employed. However, process ratios are obvious manipulations of process parameters. Claim 21 requires the addition of isophytol or phytol, alone or in solution, portionwise to a suspension or solution of trimethylhydroquinone and the catalyst. Such a limitation is disclosed in example 6, column 3, lines 45-57. Claim 22 requires that the process be carried out in a continuous manner. '196' is silent on such a limitation. However, example 6 discloses a continuous addition of isophytol to the reaction medium. Therefore, it can be inferred that the process is continuous.

Finding of prima facie obviousness---rational and motivation (M.E.P.. §2142-2143)

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Accordingly, one of ordinary skill in the art would thus have been motivated to prepare α -tocopherol by exchanging one known catalyst for the other and manipulating process parameters such as ratios, temperature's solvents with the expectation of improving product yield and purity absent a showing of unexpected results. The process that is being claimed is a predictable and expected process. The instantly claimed method would therefore have been suggested to one of ordinary skill absent a showing of unexpected properties and/or results.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to E. Sackey whose telephone number is (703) 305-6889. The examiner can normally be reached on Monday-Friday from 7:30 am to 4:30 pm.

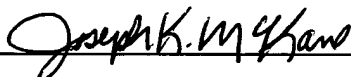
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph K. McKane, can be reached on (703) 308-4537. The fax phone number for this Group is (703) 308-4556.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-1235.

EOS

March 5, 2003



Joseph K. McKane

Supervisory Patent Examiner

Art Unit 1626, Group 1600

Technology Center 1